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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/389,393	09/03/1999	HISASHI OHTANI	07977/204002	5375

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EXAMINER

BAUMEISTER, BRADLEY W

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 01/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.



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EXAMINER

ART UNIT

PAPER NUMBER  
**15**

DATE MAILED:

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

## OFFICE ACTION SUMMARY

- ☒ Responsive to communication(s) filed on 10/17/01
- ☒ This action is **FINAL**

- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

- ☒ Claim(s) 1-3, 6-8, 11-13, 15-18, 20-23, 25-27 & 29-38 is/are pending in the application.
- Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☒ Claim(s) 1-3, 6-8, 11-13, 15-18, 20, 21, 23, 29, 30, 33-37 is/are allowed.
- ☒ Claim(s) 22, 25-27, 31, 32, 38 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☒ The drawing(s) filed on 9/3/99 is/are objected to by the Examiner.
- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been
- ☐ received.
- ☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

- ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- ☒ Notice of Reference Cited, PTO-892
- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_
- ☐ Interview Summary, PTO-413
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Notice of Informal Patent Application, PTO-152

--SEE OFFICE ACTION ON THE FOLLOWING PAGES--

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## **DETAILED ACTION**

### ***Terminal Disclaimer***

1. The terminal disclaimer filed on 10/19/2001 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of USP #5,973,378 has been reviewed and is accepted. The terminal disclaimer has been recorded.

### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include most of the following reference numeral and character sign(s) mentioned in the description: rather the figures only include a few reference numerals such as 1, 2, 3, and 31-33. Correction is still required.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the bottom-gate (gate formed below the channel) embodiment set forth in claims 21, 25 and their dependent claims must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any

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person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 22 and 26 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. These claims set forth that the insulating layer is composed of silicon oxide. However, Applicant discloses in the specification that the insulating layer is composed of an anodic oxide material. The specification does not disclose or suggest a bottom-gate FET having a gate insulating film composed of silicon oxide--either instead of or in addition to the anodic oxide film.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 22, 25-27, 31, 32 and 38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Independent claims 21 and 25, as amended, are currently directed towards bottom-gate embodiments, so that the recited insulating film on the gate electrode is the anodic oxide of the gate conductors. However, claims 22 and 26 set forth that the insulating film is composed of

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silicon oxide. It would be unclear to one skilled in the art how to form silicon oxide by oxidizing the metal gate conductors.

b. Independent claim 25 sets forth "a gate insulating film formed on said gate electrode" (line 5) and subsequently "an insulating film comprising oxide of said first and second conductive layers" (line 10). It would be unclear to one skilled in the art whether one of the recitations is an inadvertent clerical-error redundancy or whether Applicant actually intends to recite two separate insulating layers. As such, claim 25 and those claims which depend from it are indefinite.

***Allowable Subject Matter***

8. Claims 1-3, 6-8, 11-13, 15-18, 20, 21, 23, 29, 30, 33-37 are allowed.

9. The following is a statement of reasons for the indication of allowable subject matter: the use of T-shaped gate electrodes in TFTs (and inverted T-gates in bottom-gate embodiments) to reduce the hot carrier effect was generally known. It was generally known to form a gate electrode for TFTs from an anodic oxide of the gate metal. Further, it was generally known to realize T-shaped gates by employing an oxidizable metal for the thinner, base portion of the T and a non-oxidizable metal for the top portion of the T. However, a search of the relevant art failed to disclose or suggest a T-shaped gate structure composed of two oxidizable metals having dissimilar oxidation rates and insulated with the respective oxides of these two materials.

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10. The application would be allowable--subject to further search and consideration--upon (1) cancellation of claims 22 and 26, and (2) appropriate correction of claim 25.

*Conclusion*

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. JP 6-265936

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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**INFORMATION ON HOW TO CONTACT THE USPTO**

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to the examiner, **B. William Baumeister**, at **(703) 306-9165**. The examiner can normally be reached Monday through Friday, 8:30 a.m. to 5:00 p.m. If the Examiner is not available, the Examiner's supervisor, Mr. Eddie Lee, can be reached at (703) 308-1690. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

B. William Baumeister

December 22, 2001



**EDDIE LEE**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**